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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,039	06/01/2007	Gerwin Hermanus Gelinck	NL03 1508 US1	6990
24738 7590 01/08/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS PO BOX 3001 BRIARCLIFF MANOR, NY 10510-8001				
EXAMINER				
INGHAM, JOHN C				
ART UNIT		PAPER NUMBER		
2814				
MAIL DATE		DELIVERY MODE		
01/08/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/584,039

**Applicant(s)**

GELINCK ET AL.

**Examiner**

JOHN C. INGHAM

**Art Unit**

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS-300)  
Paper No(s)/Mail Date 6/21/06/6/1/07
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 7 is objected to because of the following informalities: "the second conductive layer" lacks antecedent basis. Appropriate correction is required.
3. Claim 16 is objected to because of the following informalities: "ration" lacks antecedent basis. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Regarding claim 10, the phrase "(random) copolymers like" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redecker (US 2003/0127676) and Geens (US 6,815,711).

9. Regarding claims 1 and 17, Redecker discloses in Fig 1 a non-volatile memory device and a method for processing comprising an organic semiconductor layer (2) and

an organic ferroelectric layer (5), said organic semiconductor layer and said organic ferroelectric layer being at least partially in contact with each other.

10. Redecker does not specify wherein the organic semiconductor layer is ambipolar. Geens teaches that an organic semiconductor layer should be ambipolar so as to combine high balanced mobility and low-cost (col 2 ln 44-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Geens so as to combine high balanced mobility and low-cost.

11. Regarding claims **2 and 3**, Redecker discloses in Fig 1 the device of claim 1, furthermore comprising a control electrode (6) being formed in a first conductive layer, the control layer being separated from said organic ambipolar semiconductor layer (2) by said organic ferroelectric layer (5).

12. Regarding claim **4**, Redecker discloses in Fig 1 the device of claim 2, further comprising a first main electrode (3) and a second main electrode (4) being formed in a second conductive layer, said first and said second main electrode being separated from each other by material of the organic ambipolar semiconductor layer (2), and said first and second main electrode being separated from said control electrode by said organic ferroelectric layer (5).

13. Regarding claim **5**, Redecker discloses in Fig 1 the device of claim 1, wherein the first conductive layer is a conductive polymer layer (§§34).

14. Regarding claim **7**, Redecker discloses in Fig 1 the device of claim 1 (see objections) wherein the second conductive layer is a conductive polymer layer (§§29).

15. Regarding claims **9 and 10**, Redecker discloses in Fig 1 the device of claim 1, wherein the organic ferroelectric layer is a ferroelectric polymer ( $\text{¶}32$ ) comprising material selected from  $(\text{CH}_2\text{-CF}_2)_n$  (Fig 1 item 5 is pVDF).

16. Regarding claims **11 and 12**, Geens teaches the device of claim 1, wherein the organic ambipolar semiconductor layer comprises a mixture of n-type and p-type material (organic ambipolar layer is PCBM and OC1C10-PPV, see col 2 ln 63-67).

17. With regards to claims **15 and 16**, Redecker and Geens disclose the device of claim 1, including an organic ambipolar layer mixture. In reference to the claim language pertaining to the effect of the device (a memory window depending on the ratio of current, whereby said ratio is close to 0 or close to 1), the claiming of a new use, new function, or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. (In re Best, 195 USPQ 430, 433 (CCPA 1977) and In re Swinehart, 439 F. 2d 210, 169 USPQ 226 (CCPA 1971); please see MPEP § 2112). Since Redecker and Geens show all the features of the claimed invention, the memory window and current ratios are an inherent property of the invention.

18. Claims **6 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Redecker and Geens as applied to claims 5 and 7 above, and further in view of Gudesen (US 2005/0151176).

19. Redecker and Geens do not specify wherein the conductive polymer layer is a PEDOT/PSS layer or a PANI layer.

20. Gudesen teaches that conducting polymers suitable for electrodes may be PANI ( $\text{¶}33$ ). One of ordinary skill in the art would have been motivated to look to analogous

art teaching alternative suitable materials for conductive polymers, art recognized suitability for an intended purpose has been recognized to be motivation to combine. MPEP 2144.07.

21. Claims **13 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Redecker and Geens as applied to claim 1 above, and further in view of Sirringhaus (US 6,905,906).

22. Redecker and Geens do not specify wherein the organic ambipolar semiconductor layer is a single organic material of poly(3,9-di-tert-butylindeno[1,2-b]fluorene).

23. Sirringhaus teaches that organic layers suitable for semiconductor layers may be polyfluorene (col 8 In 35-40). One of ordinary skill in the art would have been motivated to look to analogous art teaching alternative suitable materials for organic semiconductors, art recognized suitability for an intended purpose has been recognized to be motivation to combine. MPEP 2144.07.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN C. INGHAM whose telephone number is (571)272-8793. The examiner can normally be reached on M-F, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wael M Fahmy/  
Supervisory Patent Examiner, Art Unit 2814

John C Ingham  
Examiner  
Art Unit 2814

/J. C. I./  
Examiner, Art Unit 2814